Response to 'T-helper 17 cell cytokines and interferon type I

Dolff, Sebastian; Abdulahad, Wayel H.; Kallenberg, Cees G. M.

Published in:
Arthritis Research and Therapy

DOI:
10.1186/ar4576

Publication date:
2014

arthritis research&therapy

LETTER

Response to 'T-helper 17 cell cytokines and interferon type I: partners in crime in systemic lupus erythematosus?'

Sebastian Dolff[1*], Wayel H Abdulahad[2] and Cees GM Kallenberg[2]

See related research by Brkic et al., http://arthritis-research.com/content/16/2/R62 and related letter by Brkic et al., http://arthritis-research.com/content/16/3/410

We read with great interest the article by Brkic and colleagues in a recent issue of *Arthritis Research & Therapy* [1]. In that study, the authors investigated the distribution of T helper (Th) subsets which produce IL-17A, IL-17 F, IL-21, and IL-22 in patients with systemic lupus erythematosus (SLE) in relation to their genetic IFN type I signature. Patients with an IFN type I-positive signature showed increased percentages of IL-17A- and IL-21-producing $CCR6^+$ T cells. From these results, the authors conclude that IFN type I cells co-act with Th17 cytokines in the pathogenesis of SLE. Surprisingly, they excluded $CD25^+$ T cells from their analysis. In a previous study, we showed that Th cells from SLE patients expressing $CD25^{med}$ and $CD25^{high}$ are also able to produce IFN-γ and IL-17A [2]. Therefore, it would be relevant to assess cytokine expression in $CD4^+CD25^+$ T cells from IFN type I-positive and IFN type I-negative SLE patients. Furthermore, it should be proven that the genetic signature is solely responsible for the increased IFN production by Th cells. In addition, their finding that $CCR6^+$ T cells are capable of producing IL-21 indirectly confirms our previous observation that $IL\text{-}17^+$ T cells are a main source of IL-21 in patients with SLE [3]. Possibly, IL-21 is orchestrating the Th1/Th17 axis.

Finally, we agree that there might be a co-activity between IFN-I- and IL-17-producing cells as described by Brkic and colleagues. However, considering our findings that T cells with a regulatory phenotype are able to produce IFN-γ and IL-17A in patients with SLE, we suggest that primarily the plasticity of T cells is altered in patients with SLE [4].

Abbreviations
IFN: Interferon; IL: Interleukin; SLE: Systemic lupus erythematosus; Th: T helper.

Competing interests
The authors declare that they have no competing interests.

Authors' contributions
All authors contributed to the interpretation of data. SD drafted the manuscript. All authors read and approved the final manuscript.

Author details
[1]Department of Nephrology, University Hospital Essen, University Duisburg-Essen, Hufelandstr. 55, 45122 Essen, Germany. [2]Department of Rheumatology and Clinical Immunology, University Medical Center Groningen, University of Groningen, Hanzeplain 1, 9713 GZ, Groningen, The Netherlands.

Published: 09 Jun 2014

References
1. Brkic Z, Corneth OB, van Helden-Meeuwsen CG, Dolhain RJ, Maria NI, Paulissen SM, Davelaar N, van Hamburg JP, van Daele PL, Dalm VA, van Hagen PM, Hazes JM, Versnel MA, Lubberts E: **T-helper 17 cell cytokines and interferon type I: partners in crime in systemic lupus erythematosus?** *Arthritis Res Ther* 2014, **16:**R62.
2. Dolff S, Bijl M, Huitema MG, Limburg PC, Kallenberg CG, Abdulahad WH: **Disturbed Th1, Th2, Th17 and Treg balance in patients with systemic lupus erythematosus.** *Clin Immunol* 2011, **141:**120–197.
3. Dolff S, Abdulahad WH, Westra J, Doornbos-van Der Meer B, Limburg PC, Kallenberg CG, Bijl M: **Increase in IL-21 producing T-cells in patients with systemic lupus erythematosus (SLE).** *Arthritis Res Ther* 2011, **13:**R157.
4. Koenen HJ, Smeets RL, Vink PM, van Rijssen E, Boots AM, Joosten I: **Human CD25highFoxp3pos regulatory T cells differentiate into IL-17-producing cells.** *Blood* 2008, **112:**2340–2352.

10.1186/ar4576
Cite this article as: Dolff et al.: Response to 'T-helper 17 cell cytokines and interferon type I: partners in crime in systemic lupus erythematosus?'. *Arthritis Research & Therapy* 2014, 16:409

* Correspondence: sebastian.dolff@uk-essen.de
[1]Department of Nephrology, University Hospital Essen, University Duisburg-Essen, Hufelandstr. 55, 45122 Essen, Germany
Full list of author information is available at the end of the article